

# Brief Summary: CARB Phase 3 Gasoline Specifications and Test Methods (revised 1/16/04)

This Summary is not a legal document and is not intended to be used in lieu of the regulation, but as an aide to understanding the specifications and limits of the fuel's regulated properties.

CCR Section	Gasoline Parameter	Test Method	Flat	Averaging (DAL)	Cap	CARBOB Cap Limits	Units	Reproducibility
2262 & 2262.3	Aromatic HC Content	ASTM D5580-00	25.0 <sup>a</sup>	22.0	35.0	38.7	v%	1.4
2262 & 2262.3	Benzene Content	ASTM D5580-00	0.80 <sup>a</sup>	0.70	1.10	1.22	v%	0.1409(x) <sup>1.133</sup>
2262 & 2262.3	Distillation, T50	ASTM D86-99 <sup>ae1</sup>	213 <sup>a</sup>	203	220	(RVP) 232 <sup>b</sup> (non-RVP) 237 <sup>b</sup>	deg F	variable
	Distillation, T90		305 <sup>a</sup>	295	330	335		
2262 & 2262.5b	Ethanol Content	ASTM D4815-99	n/a	n/a	10	n/a	v%	0.23(x) <sup>0.57</sup>
2262 & 2262.6a	MTBE Content	ASTM D4815-99	none added	n/a	0.60 0.15 <sup>d</sup> 0.30 <sup>c</sup> 0.05 <sup>e</sup>	n/a	v%	0.12(x) <sup>0.67</sup>
2262 & 2262.3	Olefin Content	ASTM D6550-00 (modified)	6	4	10	11.1	v%	0.32(x) <sup>0.5 f</sup>
2262 & 2262.5	Oxygen Content	ASTM D4815-99 Equiv: GC/FTIR	1.8 to 2.2	n/a	0 to 3.5 <sup>g</sup> 1.8 <sup>b</sup> to 3.5 <sup>g</sup>	n/a	w%	variable
2262 & 2262.6c	Oxygen Content (total, other than EtOH & MTBE)	ASTM D4815-99	none added	n/a	0.10 0.06 <sup>c</sup>	n/a	w%	variable
2262 & 2262.4	Reid Vapor Pressure <sup>i</sup>	ASTM D323-58 or 13 CCR Section 2297	7.00 6.90 <sup>j</sup>	n/a	7.20 6.40 min <sup>k</sup>	5.99	psi	0.21
2262 & 2262.3	Sulfur Content	for >10 ppm: ASTM D2622-94 (modified) or ASTM D5453-93	20	15	60 30 <sup>d</sup>	66 32	ppm	for 2622: for S between 10 to 30 ppm: 40.5% (x)
		for 1 to 10 ppm: ASTM D5453-93 Equiv: ASTM D4045-92 (modified) Equiv: ASTM D4045-96						for 2622: for S > 30 ppm 19.2% (x)
								for 5453: 0.2217(x) <sup>0.92</sup>
2257	Deposit Control Additive	Specifications are listed in the individual deposit control additive certifications.						
2253.4	Lead Content	ASTM D3237-79	0.05	n/a	n/a	n/a	gm/gal	0.01
2254	Manganese Content	None specified, (using ASTM D2622-94)	none added	n/a	n/a	n/a	ppm	n/a
2253.4	Phosphorus Content	ASTM D3231-73	0.005	n/a	n/a	n/a	gm/gal	0.0005

See Section 2264 on DAL averaging, Section 2265 on predictive model formulations, and Section 2266 on certified formulations. Note: for reproducibilities, x = test result

a = small refiner limits are 35.0 for aromatic HC, 1.00 for benzene, 220 for T50, 312 for T90.

b = limits for RVP and non-RVP season gasoline. c = applies July 1, 2004. d = applies July 1, 2005. e = July 1, 2007.

f = x is between 0.3 and 25 m% olefin. Conversion from m% to v% is: (v% olefin) = (0.857) (m% olefin).

g = cap limit is 3.7 w% if oxygen is > 3.5 w% **and** ethanol content is ≤ 10 v%.

h = 1.8% winter minimum applies Nov. 1 to Feb. 29 in the South Coast Area and Imperial County.

i = beginning and ending at different times of the year according to air basin (generally March through October).

j = applies when evaporative emissions element of predictive model is used. k = minimum RVP applies during non-RVP season on CARBOB final blends.

<b>Denatured Ethanol Standards</b>								
2262.9	Aromatic Content (ETOH)	None specified	1.7				v%	
2262.9	Benzene Content (ETOH)	None specified	0.06				v%	
2262.9	Olefin Content (ETOH)	None specified	0.5				v%	
2262.9	Sulfur Content (ETOH)	<u>ASTM D5453-93</u>	10				ppm	
<b>Denaturant Standards</b>								
2262.9	Aromatic (in denaturant)	<u>ASTM D5580-00</u>	35				v%	
2262.9	Benzene (in denaturant)	<u>ASTM D5580-00</u>	1.1				v%	
2262.9	Olefin (in denaturant)	<u>ASTM D6550-00 (modified)</u>	10				v%	